

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION (PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 May 2000 (12.05.00)	
International application No. PCT/SE99/01354	Applicant's or agent's file reference PAS-0011.SE
International filing date (day/month/year) 09 August 1999 (09.08.99)	Priority date (day/month/year) 19 August 1998 (19.08.98)
Applicant ENGVALL, Daniel et al	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

17 March 2000 (17.03.00)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer F. Baechler Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

To:

MIKSCHE, Gerhard
 Conimar AB
 P.O. Box 2086
 S-141 38 Huddinge
 SUÈDE

Date of mailing (day/month/year) 12 May 2000 (12.05.00)
Applicant's or agent's file reference PAS-0011.SE
International application No. PCT/SE99/01354

IMPORTANT NOTIFICATION

International filing date (day/month/year)
09 August 1999 (09.08.99)

1. The following indications appeared on record concerning: <input type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input checked="" type="checkbox"/> the agent <input type="checkbox"/> the common representative				
Name and Address MIKSCHE, Gerhard Conimar AB P.O. Box 2086 S-141 02 Huddinge Sweden		State of Nationality	State of Residence	
		Telephone No. +46-(0)8-608 15 71		
		Facsimile No. +46-(0)8-689 95 10		
		Teleprinter No.		
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: <input type="checkbox"/> the person <input type="checkbox"/> the name <input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence				
Name and Address MIKSCHE, Gerhard Conimar AB P.O. Box 2086 S-141 38 Huddinge Sweden		State of Nationality	State of Residence	
		Telephone No. +46-(0)8-608 15 71		
		Facsimile No. +46-(0)8-689 95 10		
		Teleprinter No.		
3. Further observations, if necessary:				
4. A copy of this notification has been sent to: <input checked="" type="checkbox"/> the receiving Office <input type="checkbox"/> the designated Offices concerned <input type="checkbox"/> the International Searching Authority <input checked="" type="checkbox"/> the elected Offices concerned <input checked="" type="checkbox"/> the International Preliminary Examining Authority <input type="checkbox"/> other:				

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer F. Baechler Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

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14

REC'D	13 DEC 2000
WIPO	PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PAS-0011.SE	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/SE99/01354	International filing date (<i>day/month/year</i>) 09.08.1999	Priority date (<i>day/month/year</i>) 19.08.1998
International Patent Classification (IPC) or national classification and IPC7 A 61 F 11/00		
Applicant Pascal Medical AB et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 17.03.2000	Date of completion of this report 01.12.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Telex 17978 PATOREG-S Leif Brander/Els Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/01354

I. Basis of the report

1. With regard to the elements of the international application:*

 the international application as originally filed the description:

pages _____, as originally filed

pages _____, filed with the demand

pages _____, filed with the letter of _____

 the claims:

pages _____, as originally filed

pages _____, as amended (together with any statement) under article 19

pages _____, filed with the demand

pages _____, filed with the letter of _____

 the drawings:

pages _____, as originally filed

pages _____, filed with the demand

pages _____, filed with the letter of _____

 the sequence listing part of the description:

pages _____, as originally filed

pages _____, filed with the demand

pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. The amendments have resulted in the cancellation of: the description, pages _____ the claims, Nos. _____ the drawings, sheet/fig _____5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/01354

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-8</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-8</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-8</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

The invention relates to an apparatus for treating Ménière's disease and is intended to solve the problem of providing a transportable apparatus for ambulant treatment.

The solution according to claim 1 is an inner casing being partially enclosed by an outer casing provided with an opening covered by a removable cover. A storage compartment is disposed between the casings where said storage compartment is surrounding a portion of the inner casing around which a flexible tube provided with an ear plug at its end is disposable in a coiled manner.

In claims 2-8 additional features of the apparatus in claim 1 are disclosed.

US 2652048 A, cited in the International Search Report, shows a transportable apparatus for treatment of ears, but do not disclose an inner casing surrounded by an outer casing in order to provide a storage compartment for a flexible tube in a coiled manner.

Consequently, the invention according to claims 1-8 is considered novel and not obvious to a person skilled in the art.

The invention is considered to be industrially applicable.

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PCT

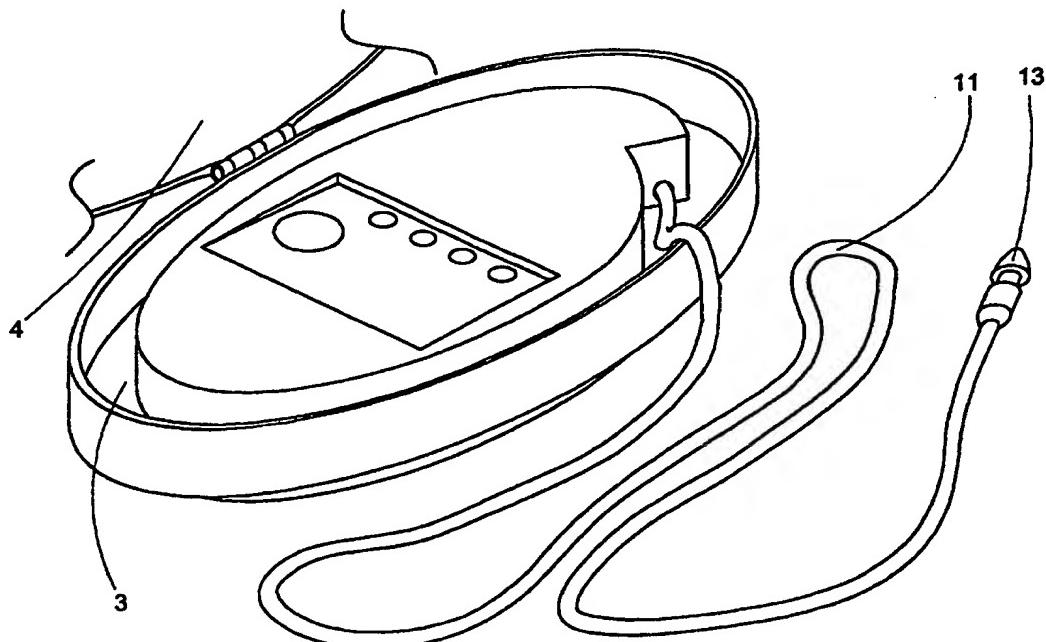
WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : A61F		A2	(11) International Publication Number: WO 00/10484
			(43) International Publication Date: 2 March 2000 (02.03.00)
(21) International Application Number: PCT/SE99/01354		(81) Designated States: AU, BG, BR, CA, CN, CZ, EE, HR, HU, IL, JP, KR, KZ, LT, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, ZA, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 9 August 1999 (09.08.99)			
(30) Priority Data: 9802771-7 19 August 1998 (19.08.98) SE		Published <i>Without international search report and to be republished upon receipt of that report.</i>	
(71) Applicant (for all designated States except US): PASCAL MEDICAL AB [SE/SE]; Pilefelsgatan 73, S-302 50 Halmstad (SE).			
(72) Inventors; and			
(75) Inventors/Applicants (for US only): ENGVALL, Daniel [SE/SE]; Hertig Knuts gata 37B, S-302 50 Halmstad (SE). NILSSON, Anders [SE/SE]; Rosentorpsvägen 21, S-302 44 Halmstad (SE).			
(74) Agent: MIKSCHE, Gerhard; Conimar AB, P.O. Box 2086, S-141 02 Huddinge (SE).			

(54) Title: TRANSPORTABLE APPARATUS FOR TREATING MENIERE'S DISEASE



(57) Abstract

A transportable apparatus for treating Ménière's disease comprises electronically controlled pressure variation means housed in an inner casing which is partially enclosed by an outer casing provided with an opening covered by a removable cover. A storage compartment is disposed between the casings to receive a flexible tube provided with an ear plug. The flexible tube is connected to the pressure variation means. The storage compartment surrounds a first portion of the inner casing in which the flexible tube can be disposed in a coiled manner.

FOR THE PURPOSES OF INFORMATION ONLY

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AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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EE	Estonia						

TRANSPORTABLE APPARATUS FOR TREATING MÉNIÈRE'S DISEASE**FIELD OF THE INVENTION**

5

The present invention relates to a transportable apparatus for treating Ménière's disease and similar conditions which affect the pressure balance between the various compartments of the internal ear.

10

BACKGROUND OF THE INVENTION

Ménière's disease can be treated by affecting the pressure in the internal ear, in particular the endolymphatic system.

15 A number of apparatus for carrying out this treatment are known in the art. They comprise a pressure generating/control unit to which a flexible tube provided with an ear plug is coupled for conducting pressure pulses to a patient's external ear.

20

WO 83/02556 discloses an apparatus for influencing the hydrodynamic system of the inner of an ear comprising a displaceable diaphragm forming the wall of an air pressure generating chamber, the diaphragm being reciprocally
25 displaceable by means of a crank coupling in a direction away from the chamber against the force of a spring coil.

WO 93/08775 discloses an air pressure generator for the treatment of Ménière's disease by pressure pulses generated
30 by a flexible membrane forming a wall in a pressure generating chamber, the membrane being displaced by actuation means rigidly coupled to the shaft of an electrical motor.

35 WO 97/23178 discloses a device for affecting the hydrodynamic system of the inner ear comprising first means

for generating a static pressure level and second means for causing a variation of that level in accordance with a predetermined program controlled by a control unit. Each of the first and second means comprise a flexible membrane.

- 5 Also in this known apparatus one half of the reciprocating movement of the diaphragm, the one in which the diaphragm moves towards the pressure generating chamber, is caused by spring means.
- 10 The design of these apparatus is silent about the patient's need for ambulant treatment. To allow the patient to live a life as normal as possible and, in particular, to travel, it should be possible to administer the treatment wherever the patient happens to be. Since such administration implies
- 15 that that it would have to be carried out in the absence of competent health care personnel self-administration should be possible. A transportable apparatus for personal use should also be of a design protecting its delicate parts and the flexible tube/earplug from damage and dirt, and its
- 20 maneuver organs from inadvertent manipulation.

OBJECTS OF THE INVENTION

It is an object of the present invention to provide an

- 25 apparatus for treatment of Ménière's disease and similar conditions by affecting the pressure in the internal ear which is easy to transport by the patient to be used whenever there is a need for treatment, and which takes into account and solves the aforementioned design problems.

30

It is another object of the invention to provide such an apparatus which, in addition, can be operated by the patient without assistance by others.

SUMMARY OF THE INVENTION

According to the present invention is provided an apparatus of the aforementioned kind, comprising electronically controlled pressure variation means housed in an inner casing, the inner casing being partially enclosed by an outer casing provided with an opening covered by a removable cover, a storage compartment disposed between the casings, a flexible tube connected to said pressure variation means at its one end and being provided with an ear plug at its other end, the flexible tube being disposable in the storage compartment and removable therefrom with its free end carrying the ear plug for administration of pressure pulses to the external ear of a patient. This solves an important problem since the flexible tube has to be about half a meter long at minimum to allow its ear plug to be fixed to the patient's external ear. If not stored and protected properly it would have a tendency to intertwine and fasten with the ear plug in other gear. This tube length is required for convenient self treatment during which the patient sits at a table while the apparatus rests on the table before him or her.

According to a preferred aspect of the invention the storage compartment surrounds a first portion of the inner casing; preferably the flexible tube is disposed in a coiled manner around that portion. This design provides additional shielding for the most sensitive elements of the apparatus while providing for easy deposition of the tube after a treatment session.

According to a second preferred aspect of the invention the first portion of the inner casing is removable from a second portion of the inner casing. Preferably the second portion

of the inner casing and the outer casing are made from one piece of material. By removing the first portion of the inner casing the electronics and the mechanical parts of the apparatus become accessible for adjustment or repair by a 5 technician without having to disassemble the apparatus. Electronic and mechanical elements of a delicate nature can be disposed in a way that makes them face the first portion. Thereby they are optimally protected by being mounted in the innermost part of the apparatus while remaining easily 10 accessible from outside for repair and testing.

Also preferred is to make the flexible tube pass through an opening in the first portion of the inner casing.

15 According to a third preferred aspect of the invention the first portion of the inner casing is provided with a panel for control of the apparatus by the patient. Thereby an inadvertent start or other manipulation of the apparatus' maneuver organs is prevented.

20

To protect the patient from damage the apparatus of the invention is confined to working pressures not exceeding 30 cm of water column. This is achieved by providing the apparatus with a pressure sensor and to program the 25 microprocessor to open a safety valve once the maximum tolerable pressure is reached.

Advantageously the apparatus of the invention comprises a rechargeable battery in a battery compartment and an 30 electrical connector for connection to a battery eliminator. The battery compartment is advantageously disposed in a way to make it accessible from the rear (bottom) side of the apparatus, that is, the side on which the apparatus stands when in use.

Further preferred features of the present invention are disclosed in the appended claims and a preferred embodiment illustrated in a rough drawing, in which is shown in

- 5 Fig. 1 the apparatus of the invention, in a side view from above, with the casing cover in an open position, and with the flexible tube in a stored (coiled) condition;
- 10 Fig. 2 the apparatus of Fig. 1 and in the same view, with the flexible tube provided with an earplug in an uncoiled position ready for connection to the external ear of a patient;
- 15 Fig. 3 the apparatus of Fig. 1, in a vertical section along its largest diameter, without the flexible tube and with the cover in a closed position.

The apparatus of the invention shown in Figs. 1-3 comprises
20 an inner casing 1 of having about the form of an ellipsoid delimited by two bases perpendicular to its the axis of symmetry and thus parallel to each other. One end portion of the inner casing 1 is surrounded by the wall of an outer casing 2 which is also ellipsoid in form and shares the axis
25 of symmetry casing 1. The ellipsoid wall of the outer casing 2 is spaced apart from the inner casing 1 to which it is joined by a bottom flange 3 forming the peripheral part of what would be its one basis. Thereby an annular space or groove 6 of elliptic form is formed. Any other suitable
30 form of the apparatus, such as a circular form, would be equally possible.

The other (topside) basis of outer casing 2 is lacking. Instead the outer casing 2 is provided with an elliptical

flat cover 4 fastened by a hinge 14 to let it be opened and closed. For most of its circumference, except for a portion in the proximity of the hinge 14, the cover 4 is provided with a rim 15 which overlaps a the outer casing 2 wall when
5 the cover 4 is in a closed position in which it can be releaseably secured to the outer casing 2 (not shown). A simple snap lock (not shown) holds the cover 4 in the closed position; it is moulded into appropriate superimposed (when closed) portions of the inside of rim 15 and the
10 outside of the outer casing 2 wall.

The inner casing 1 contains a pressure generating unit 7 for generating the variations in air pressure to be adduced to the external ear of a patient and, from there, to the
15 patient's internal ear through a tiny tube implanted in the tympanic membrane. The pressure generating unit 7 may comprise a diaphragm pump operated by electrically driven actuating means, such as the assembly disclosed in WO 97/23178. It is only indicated in a general way in Fig. 3.
20 The pressurized air outlet of the pressure generating unit 7 has the form of a nipple 10 suitable for attaching one end of a flexible plastic tube 11 the other end of which carries an earplug 13 to be inserted into one of the the patient's external ears.

25

The flexible tube 11 extends through a circular opening 8 into the elliptical circumferential groove 6 in which it can be wound up when the apparatus of the invention is not being used. This condition is shown in Fig. 1. The free end 12 of
30 the flexible tube 11 normally carries an earplug 13 which has been omitted in Fig. 1 for reasons of clarity. Though being substantially thicker than the flexible tube 11 the earplug 13 can also be stored in the elliptical groove 6 by

a design making the groove to widen at a portion 9 of the inner casing 1 wall deviating in the direction of the axis of symmetry of the ellipsoid; the opening 8 is arranged in this wall portion 9.

5

Fig. 2 shows the apparatus of the invention ready for use. The flexible tube 11 is unwound and disposed for most of its length outside of the apparatus of the invention.

- 10 The apparatus in Figs. 1-3 is intended to be put on a horizontal support with its flat underside, the basis pertaining to the portion of the inner casing 1 extending exteriorly of the outer casing 2.
- 15 In addition the inner casing 1 houses an only schematically illustrated electronic control unit 17 including a microprocessor for controlling the generation of the pressure pulses in the pressure generating unit 7. Energy for several treatments can be stored in rechargeable batteries 23 disposed in a separate battery compartment 24 accessible from the underside of the apparatus by removing the compartment lock 25. Miniature contacts accessible from outside for recharging the batteries 23 through a battery eliminator are not shown in the Figures; the same is true
- 20 for other electrically operated equipment known in the art, such as a valve for equalizing air pressure in the pressure generating unit 7 and a safety valve.
- 25

- 30 The top wall 5 of the inner casing 1 is provided with a panel 18 for operation of the apparatus by the patient. The panel 18 comprises an on/off touch switch 19 and four diode lights 20 indicating, to the patient: whether the apparatus is pumping or not; the completion of a treatment session;

that the manual should be consulted; that there is a leakage.

The portion of the inner casing 1 enclosed by the outer
5 casing 2 is mounted by screws 22 to the combination of the
not-enclosed portion of 2 and the outer casing 1 which is
made in a single piece of a hard polymer material; the same
material is used for said mounted portion of the inner
casing 2 and the outer casing cover 4. This design provides
10 convenient access to the various parts housed in the inner
casing 1.

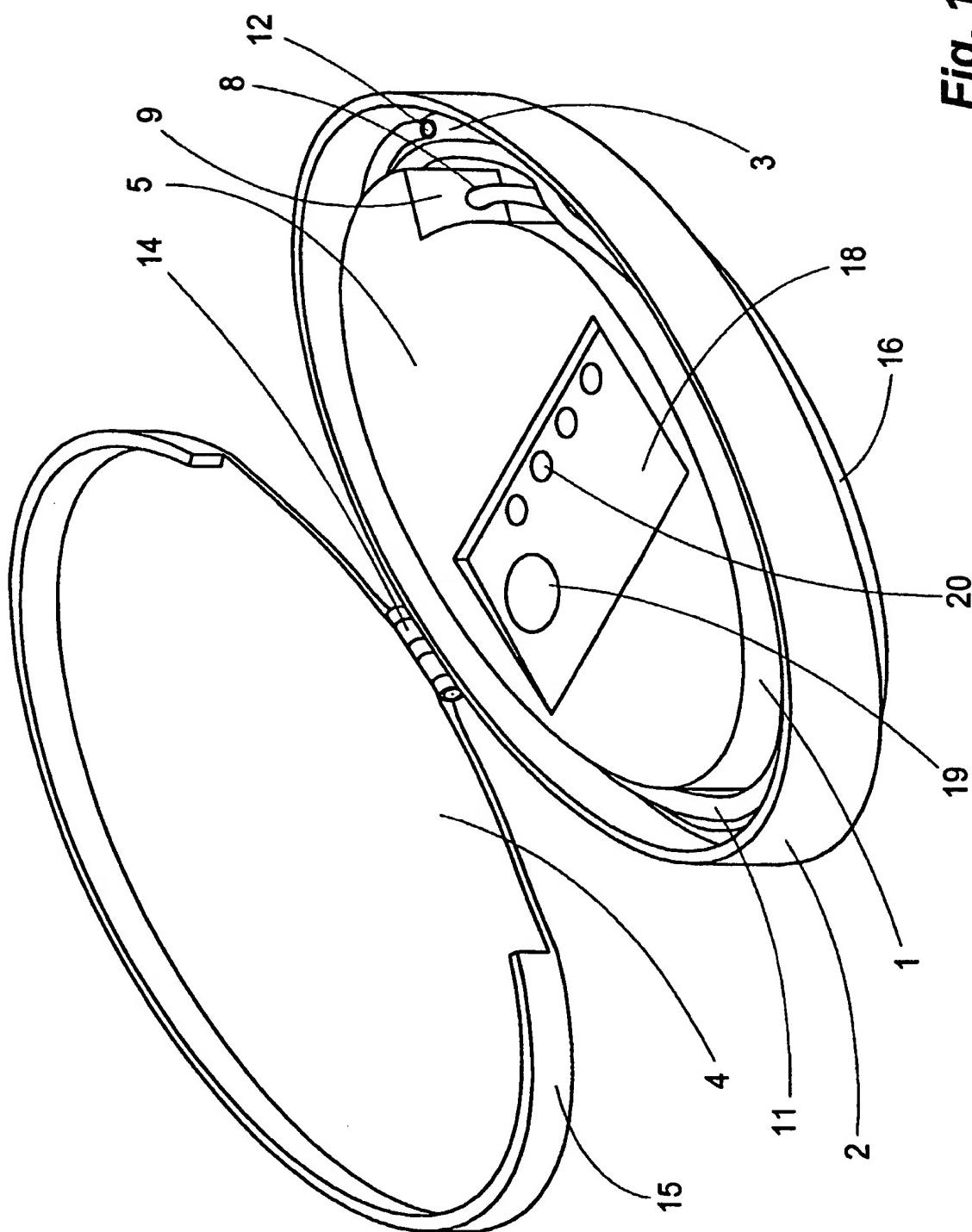
The apparatus of the invention can be made to a size and a
weight which make it convenient to carry. The casings can be
15 manufactured by injection moulding from a variety of polymer
materials. A prototype of weighing about 550 g has been
tested in patients with good results.

C l a i m s

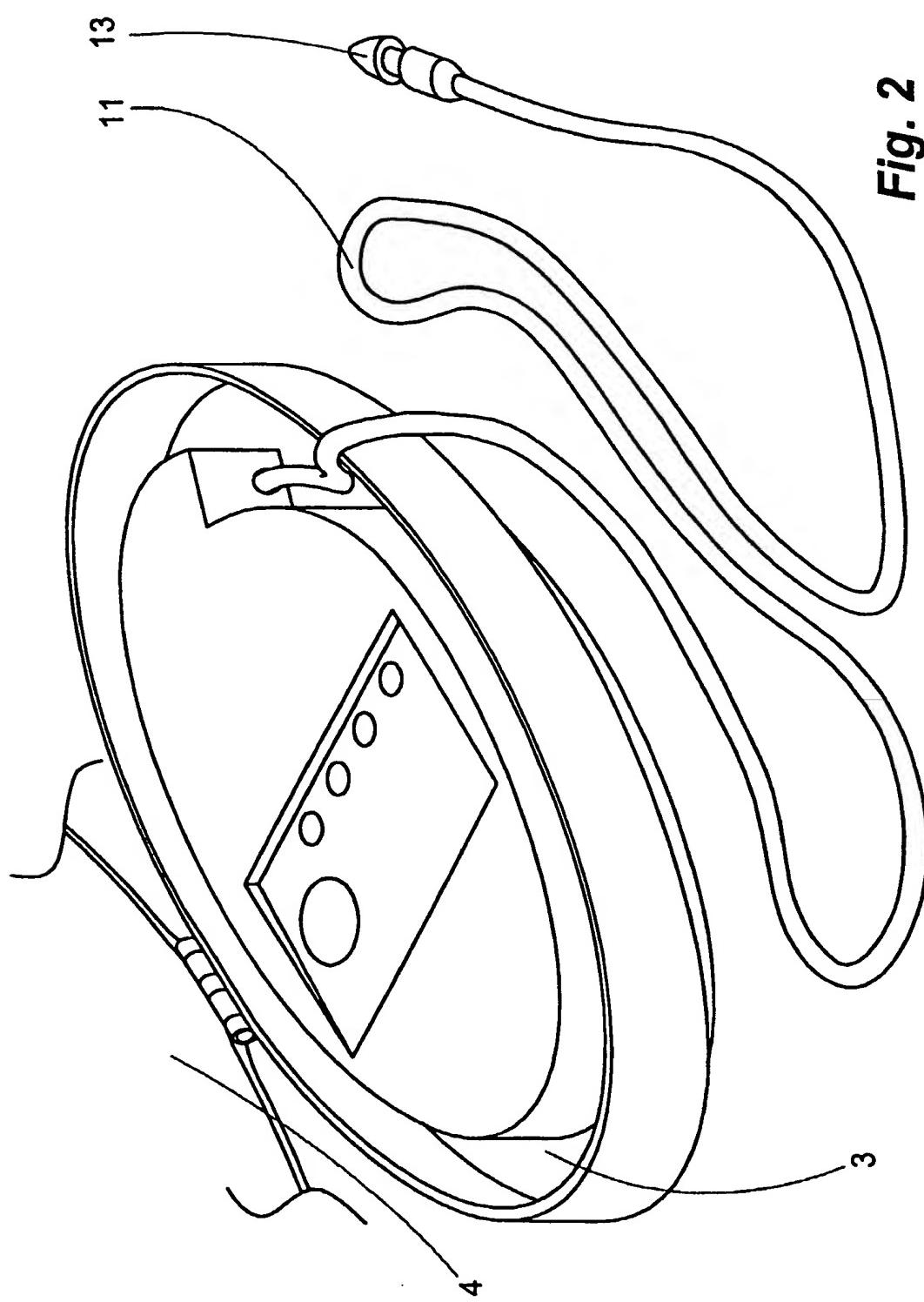
1. A transportable apparatus for treating Ménière's disease and similar conditions affecting the pressure balance between the various compartments of the internal ear, comprising electronically controlled pressure variation means housed in an inner casing, the inner casing being partially enclosed by an outer casing provided with an opening covered by a removable cover, a storage compartment disposed between the casings, a flexible tube connected to said pressure variation means at its one end and being provided with an ear plug at its other end, the flexible tube being disposable in the storage compartment and removable therefrom with its free end carrying the ear plug for administration of pressure pulses to the external ear of a patient, said storage compartment surrounding a first portion of the inner casing around which the flexible tube is disposable in a coiled manner.
- 20 2. The apparatus of claim 1, wherein said first portion is removable from a second portion of the inner casing.
3. The apparatus of claim 2, wherein said second portion of the inner casing and the outer casing are made from one piece of material.
4. The apparatus of any of claims 1-3, wherein said first portion of the inner casing is provided with a panel for control of the apparatus by the patient.
5. The apparatus of any of claims 1-3, wherein the flexible tube passes through an opening in said first portion of the inner casing.

6. The apparatus of any of claims 1-5, wherein the pressure pulses do not exceed 30 cm of water column.
- 5 7. The apparatus of any of claims 1-6, comprising a rechargeable battery in a battery compartment and an electrical connector for connection to a battery eliminator.
8. The apparatus of any of claims 1-7, wherein said
10 removable cover is hinged to said outer casing.

1/3

Fig. 1

2/3

Fig. 2

3/3

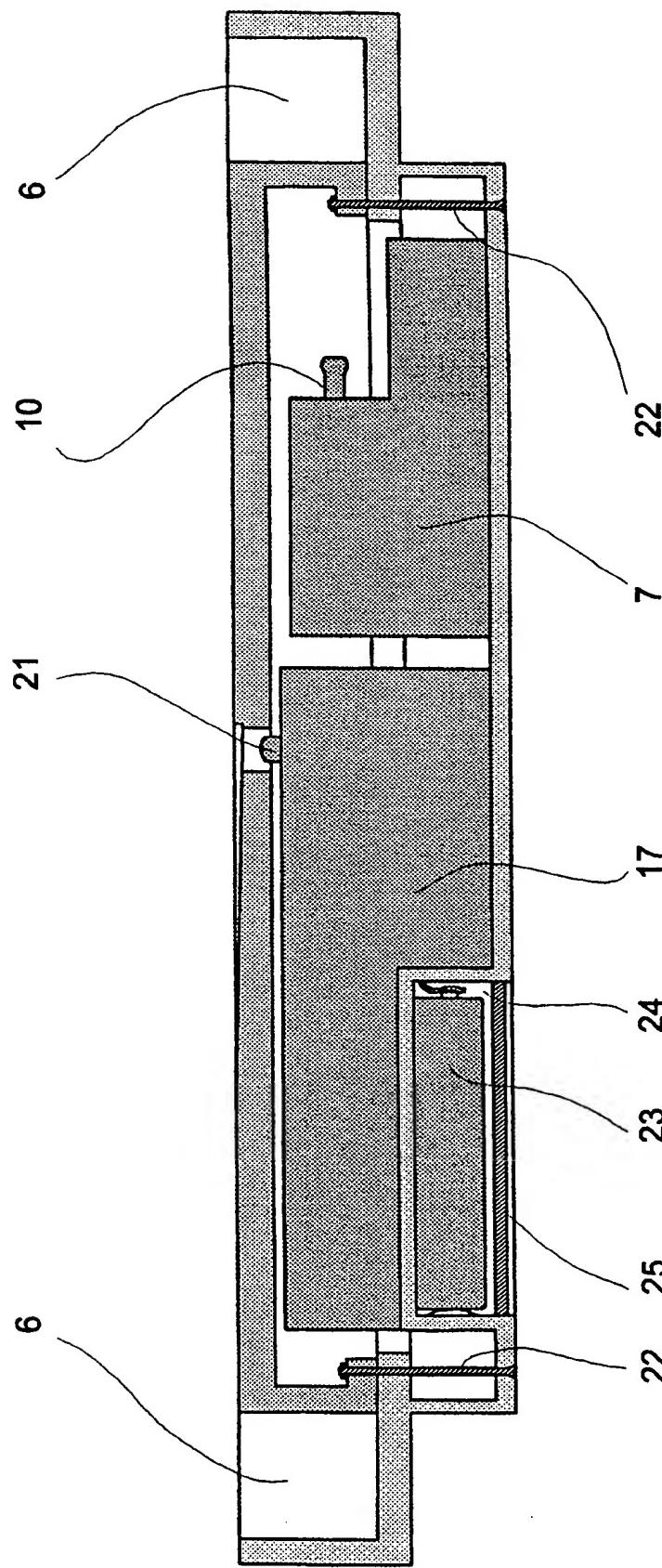


Fig. 3

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 March 2000 (02.03.2000)

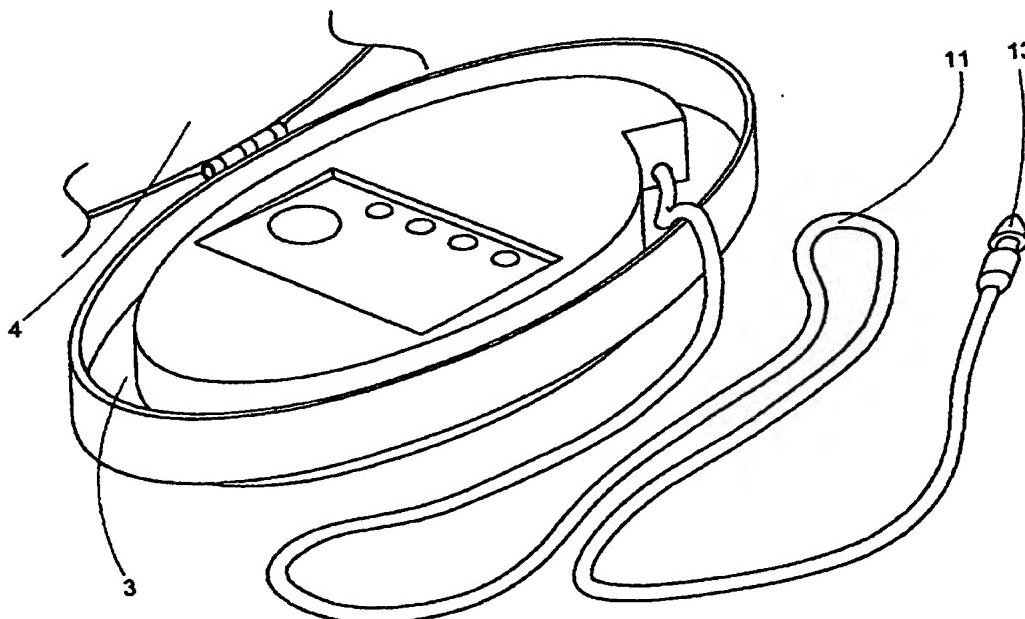
PCT

(10) International Publication Number
WO 00/10484 A3

- (51) International Patent Classification⁷: **A61F 11/00**
- (21) International Application Number: **PCT/SE99/01354**
- (22) International Filing Date: 9 August 1999 (09.08.1999)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
9802771-7 19 August 1998 (19.08.1998) SE
- (71) Applicant (*for all designated States except US*): **PASCAL MEDICAL AB [SE/SE]**; Pilefelsgatan 73, S-302 50 Halmstad (SE).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **ENGVALL, Daniel [SE/SE]**; Hertig Knuts gata 37B, S-302 50 Halmstad (SE). **NILSSON, Anders [SE/SE]**; Rosentorpsvägen 21, S-302 44 Halmstad (SE).
- (74) Agent: **MIKSCHE, Gerhard**; Conimar AB, P.O. Box 2086, S-141 38 Huddinge (SE).
- (81) Designated States (*national*): AU, BG, BR, CA, CN, CZ, EE, HR, HU, IL, JP, KR, KZ, LT, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, ZA.
- (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).
- Published:**
— *With international search report.*
- (88) Date of publication of the international search report: 12 April 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TRANSPORTABLE APPARATUS FOR TREATING MENIERE'S DISEASE



WO 00/10484 A3

(57) Abstract: A transportable apparatus for treating Ménière's disease comprises electronically controlled pressure variation means housed in an inner casing which is partially enclosed by an outer casing provided with an opening covered by a removable cover. A storage compartment is disposed between the casings to receive a flexible tube provided with an ear plug. The flexible tube is connected to the pressure variation means. The storage compartment surrounds a first portion of the inner casing in which the flexible tube can be disposed in a coiled manner.

INTERNATIONAL SEARCH REPORT

1

International application No.

PCT/SE 99/01354

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61F 11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2652048 A (C.F. JOERS), 15 Sept 1953 (15.09.53), column 2, line 35 - column 3, line 8, figures 1-2 -- -----	1-8

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2652048 A	15/09/53	NONE	